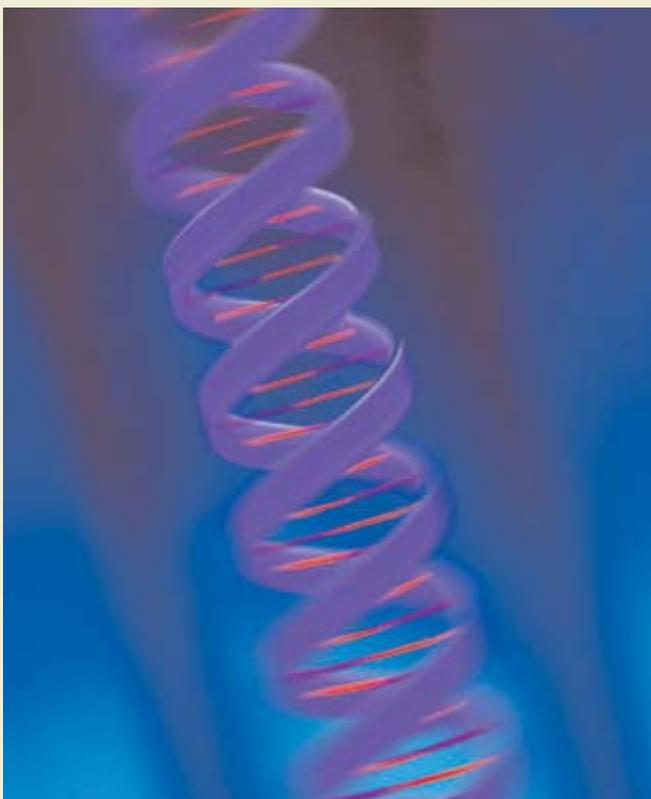


Biological Therapy

**Treatments
That Use
Your
Immune
System
to Fight
Cancer**



**PATIENT
& family
EDUCATION**

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES
National Institutes of Health
National Cancer Institute



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- People with cancer and their families
- Members of the Oncology Nursing Society, Targeted and Biological Therapies Special Interest Group
- Members of the Cancer Patient Education Network

What is biological therapy?

Biological therapy (BYE-o-loj-ee-cal THER-ah-py) is a type of treatment that works with your immune system. It can help fight cancer or help control side effects (how your body reacts to the drugs you are taking) from other cancer treatments like chemotherapy.

What is the difference between biological therapy and chemotherapy?

Biological therapy and chemotherapy are both treatments that fight cancer. While they may seem alike, they work in different ways. Biological therapy helps your immune system fight cancer. Chemotherapy attacks the cancer cells directly.

How does biological therapy fight cancer?

Doctors are not sure how biological therapy helps your immune system fight cancer. But they think it may:

- Stop or slow the growth of cancer cells.
- Make it easier for your immune system to destroy, or get rid of, cancer cells.
- Keep cancer from spreading to other parts of your body.

What is my immune system and how does it work?

Your immune system includes your spleen, lymph nodes, tonsils, bone marrow, and white blood cells. These all help protect you from getting infections and diseases.

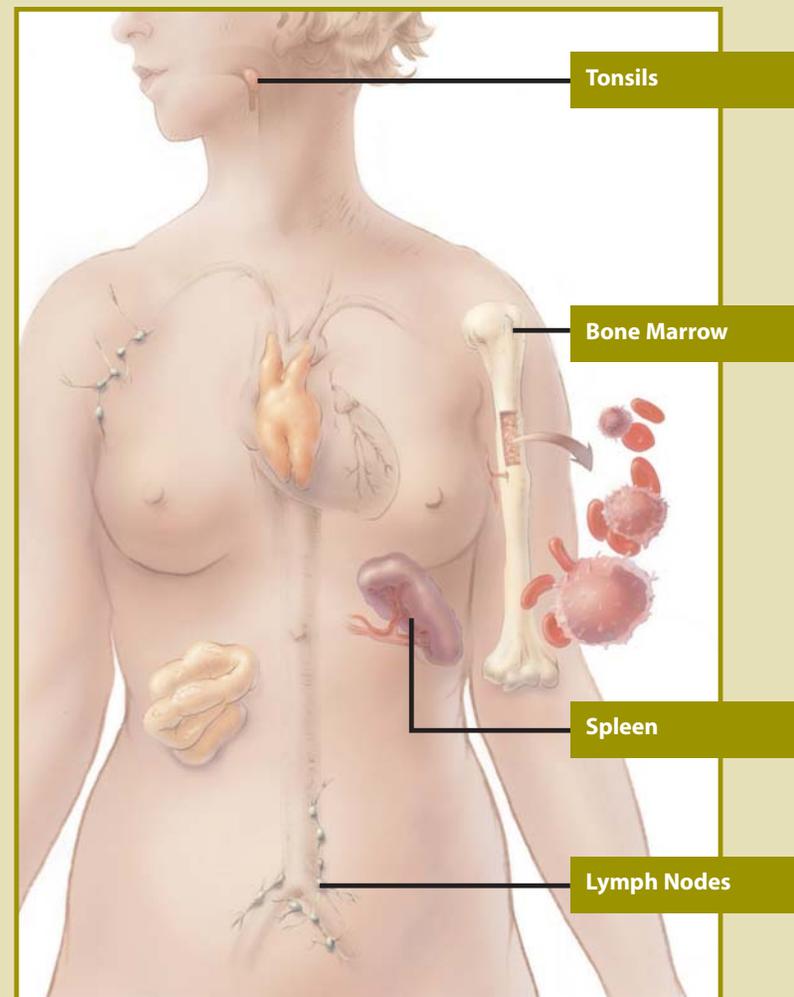
When your immune system works the way it should, it can tell the difference between “good” cells that keep you healthy and “bad” cells that make you sick. But sometimes this doesn’t happen. Doctors are doing research to learn why some immune systems don’t fight off diseases like cancer.

White blood cells are an important part of your immune system. When your doctor or nurse talks about your white blood cells, he or she may use words like:

- **Monocytes** (MON-o-cites) are types of white blood cells.
- **Lymphocytes** (LYM-fo-cites) are types of white blood cells.
- **B cells** are kinds of lymphocytes.
- **T cells** are kinds of lymphocytes.
- **Natural killer cells** are kinds of lymphocytes.



The Parts of the Immune System



What are some questions to ask my doctor or nurse about biological therapy?

■ Why do you recommend biological therapy for me?

Your treatment choices depend on the type of cancer you have, how far your cancer has spread, and the treatments you have already tried. For some people, biological therapy is the best treatment choice.

■ Will biological therapy be my only treatment?

Some people only need biological therapy. Others also get chemotherapy and radiation treatment. Talk with your doctor about the kind of treatment you will be on and how it can help.

■ Where do I go to get my treatment?

Some biological therapy drugs are pills or shots that you can take at home. Others are given through an IV, and you must go to the hospital or clinic to get them. If this is the case, find out how long you will need to stay at the hospital or clinic.

■ How often will I get my treatment?

Treatment schedules vary. Biological therapy may be given once a day or a couple of times a day. Others are given less often—sometimes once a week, or perhaps just once every month or two. Your doctor will tell you how often you will get your treatment and how long you will need to be on it.

■ How much will my treatment cost?

Talk with your nurse, social worker, or doctor about the cost of your treatment. Make sure to ask if your insurance company pays for biological therapy.

■ What side effects can I expect?

Just like other forms of cancer treatment, biological therapy sometimes causes side effects. Side effects can include:

- **Rashes or swelling** where the treatment is injected.
- **Flu-like symptoms** such as fever, chills, nausea, vomiting, loss of appetite, fatigue, bone pain, and muscle aches.
- **Lowered blood pressure** (blood pressure goes down).

What are cancer vaccines?

Cancer vaccines are a form of biological therapy. While other vaccines (like ones for measles or mumps) are given before you get sick, cancer vaccines are given after you have cancer. Cancer vaccines may help your body fight the cancer and keep it from coming back.

Doctors are learning more all the time about cancer vaccines. They are now doing research about how cancer vaccines can help people diagnosed with melanoma, lymphoma, and kidney, breast, ovarian, prostate, colon, and rectal cancers.

What are the names of some biological therapy?

There are many kinds of biological therapy. Here are the names of some common ones with ways to say them and brief statements about how they are used in cancer care.

Treatments for cancer:

- **BCG** or Bacillus Calmette-Guérin (ba-SIL-us KAL-met gay-RAIN) treats bladder tumors or bladder cancer.
- **IL-2** or Interleukin-2 (in-ter-LOO-kin 2) treats certain types of cancer.
- **Interferon alpha** (in-ter-FEER-on AL-fa) treats certain types of cancer.
- **Levamisole** (lee-VAM-i-sol) is used with other cancer drugs to fight colon cancer.
- **Rituxan** or Rituximab (ri-TUX-i-mab) treats non-Hodgkin's lymphoma.
- **Herceptin** (her-SEP-tin) or Trastuzumab treats breast cancer.

Treatments for controlling side effects:

- **Neupogen** (NU-po-jen) or G-CSF increases white blood cell counts and helps prevent infection in people who are getting chemotherapy.
- **Procrit, Epogen**, or Erythropoietin (e-RITH-ro-po-i-tin) helps make red blood cells in people who have anemia.
- **Interleukin-11** or Oprelvekin (oh-PREL-ve-kin) helps make platelets (a type of blood cell).

How can I learn more about biological therapy research?

Doctors are studying biological therapy in clinical trials—research studies that test new cancer treatments.

To find out about clinical trials of biological therapy, call the Cancer Information Service (see page 8) or look on the Internet at http://cancer.gov/clinical_trials/.

How can I learn more about the treatments I am on?

After you talk with your doctor or nurse, you may also want to do your own “homework” about the treatments you are on. Here are some ways to learn more:

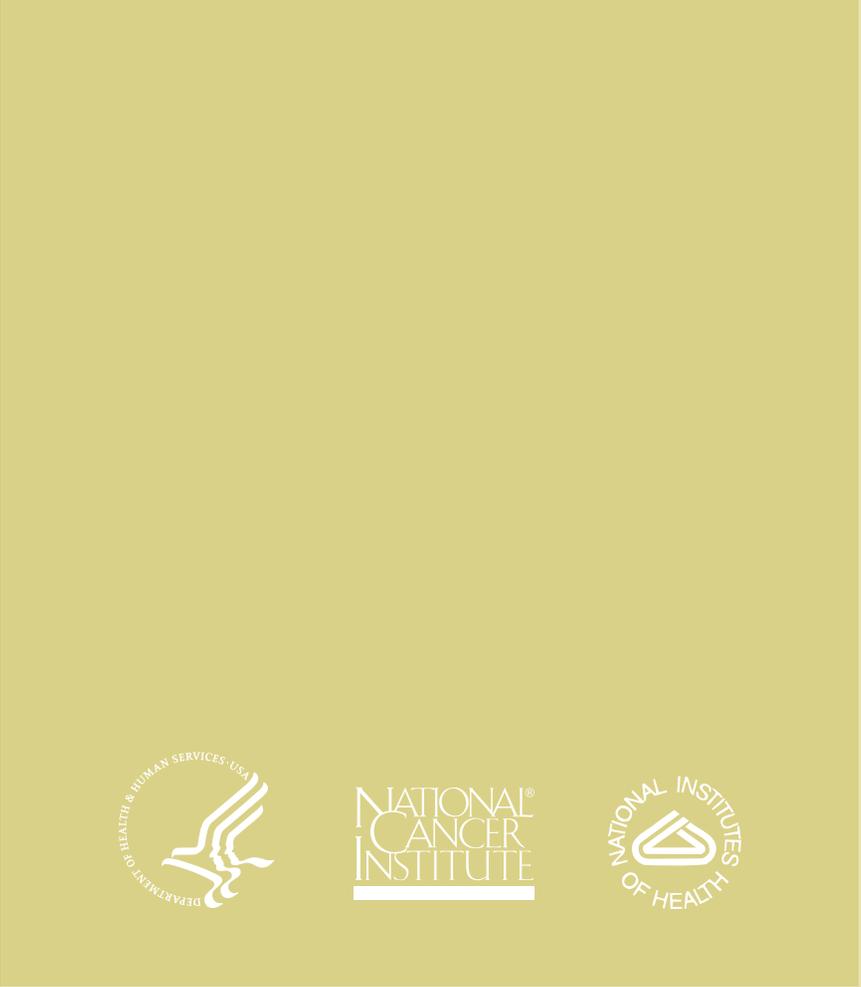
- Visit the MEDLINEplus Web site at **<http://www.nlm.nih.gov/medlineplus/druginformation.html>**
Sponsored by the National Institutes of Health, this Web site has a lot of information about many types of cancer drugs, including biological therapy.
- Call the **Cancer Information Service (CIS)** at 1-800-4-CANCER (1-800-422-6237). Sponsored by the National Cancer Institute (NCI), the CIS has information about cancer and its treatments.

How can I learn more about cancer and its treatment?

You can find out more from these NCI services:

- Cancer Information Service
Toll-free: 1-800-4-CANCER (1-800-422-6237)
TTY (for deaf and hard-of-hearing callers):
1-800-332-8615
- NCI Online
Use **<http://cancer.gov>** to reach NCI’s Web site





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